



Remake of the Coastal Integrated Forestry Operations Approvals

Discussion paper February 2014



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This discussion paper was developed jointly by the NSW Environment Protection Authority, Forestry Corporation of NSW and Department of Primary Industries - Fisheries NSW.

Cover image: Young regrowth in forest in Nadgee State Forest near Eden in the South East region (FCNSW).

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Integrated Forestry
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ACRONYMS

API	Aerial Photographic Interpretation
BMAD	Bell Miner Associated Dieback
DEM	Digital Elevation Model
DPI	Department of Primary Industries
EFSM	Ecologically Sustainable Forest Management
EPA	Environment Protection Authority
EPL	Environment Protection Licence
FCNSW	Forestry Corporation of NSW
FL	Fisheries Licence
FPA	Forestry Practices Authority of Tasmania
GPS	Global Positioning System
HCVOG	High Conservation Value Old Growth
IFOA	Integrated Forestry Operations Approval
LIC	Land Information Centre
LiDAR	Light Detection and Ranging
NSW LPI	NSW Land and Property Information
NSW	New South Wales
POEO Act	Protection of the Environment Operations Act 1997
RFA	Regional Forest Agreement
TEC	Threatened Ecological Community
TSL	Threatened Species Licence

Have your say

To have your say about the proposals contained in this paper, send your feedback to the Environment Protection Authority by:

Email: ifoa.remake@epa.nsw.gov.au

Web: www.haveyoursay.nsw.gov.au
www.epa.nsw.gov.au/forestagreements/coastlFOAs.htm

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Please provide any comments by **midnight 6 April 2014**.

All submissions will be published on the EPA's website unless you identify in your submission that you do not wish the content to be released when you provide it to the EPA.

1. Overview

Forestry legislation in NSW provides for Integrated Forestry Operations Approvals (IFOAs), which integrate the regulatory regimes for environmental planning and assessment, protection of the environment and threatened species conservation. The IFOAs incorporate licence conditions that protect soil, water and threatened species and their habitats. The IFOAs play a key role in the day-to-day planning and activities of the Forestry Corporation of NSW (FCNSW).

In May 2012, the NSW Government announced a remake of the IFOAs for the Eden, Southern, Upper North East and Lower North East coastal regions of New South Wales (NSW).

The NSW Government is committed to delivering a single new IFOA for coastal NSW. The Environment Protection Authority (EPA), FCNSW and the Department of Primary Industries - Fisheries NSW (DPI) have begun work to identify the key issues for the IFOA remake and to develop initial concepts and components of the new IFOA.

The objectives of the coastal IFOAs remake are to reduce the costs of implementation and compliance and to improve the clarity and enforceability of IFOA conditions. The NSW Government has committed to delivering these objectives with no net change to wood supply and maintenance of environmental values.

The purpose of this document is to present key concepts and components being considered for the new IFOA and seek community feedback before the new draft IFOA is prepared.

2. Why the NSW Government is remaking the coastal IFOAs

The coastal IFOAs are intended to integrate the environmental planning and assessment; environment and water protection; and threatened species conservation regulatory requirements for forestry operations on State forests and other Crown-timber lands.

Over time, experience in implementing, monitoring and enforcing compliance with the coastal IFOAs has shown they do not achieve their original purpose. The IFOAs are difficult to understand and implement and the lack of clarity and enforceability of IFOA conditions makes regulation difficult.

The current coastal IFOAs are process-focused and have not allowed forestry operations to keep pace with changes in technology, logging practices or best regulatory practice. There are over 2000 conditions in the current coastal IFOAs, which are over 350 pages long. Rather than being integrated, they consist of four separate licences - general operating conditions, an Environment Protection Licence (EPL), a Threatened Species Licence (TSL) and a Fisheries Threatened Species Licence (FL).

In 2010, the NSW Government conducted a statutory ten-year review of the coastal NSW Forest Agreements and IFOAs. The review tracked progress and highlighted achievements, and also recommended 63 changes to the IFOAs. These changes were finalised in March 2013. While they have clarified and simplified some IFOA conditions and helped to facilitate improved operational efficiency and environmental outcomes, the review did not address the fundamental structural issues with the IFOAs or resolve implementation and enforcement difficulties.

Since the commencement of the coastal IFOAs between 2000 and 2002, three more IFOAs were developed to cover the Brigalow and Nandewar Regions (2010), the Riverina Region (2011) and the South Western Cypress Region (2011). Lessons learned implementing the coastal IFOAs enabled substantial improvements to be made to the operation, integration and clarity of the licence conditions in these later Western IFOAs, which better integrate the conditions of the various licences.

Given these issues, the NSW Government is undertaking a comprehensive remake of the coastal IFOAs to address these identified weaknesses and deliver a modern regulatory framework for forestry operations on Crown-timber land in coastal NSW.

2.1 Objectives of the IFOA remake

The objectives of the IFOA remake are to reduce the costs associated with implementation and compliance and improve the clarity and enforceability of the IFOAs. The NSW Government is committed to delivering these objectives with no net change to wood supply and no erosion of environmental values.

The remake of the coastal IFOAs also provides an opportunity for the NSW Government to recognise innovations in best regulatory practice, incorporate advances in technology and deliver a contemporary regulatory framework that is fit for purpose.

2.2 Scope of the IFOA remake

The key principles that will guide the remake of the coastal IFOAs and underpin the new IFOA are:

- The IFOA remake will not affect commitments made under the Regional Forest Agreements (RFAs) and NSW Forest Agreements.
- The new IFOA will not change the Comprehensive, Adequate and Representative reserve system.
- The new coastal IFOA will not reduce FCNSW ability to meet high quality wood supply commitments established in the NSW Forest Agreements.

- The new coastal IFOA will be outcomes-focused, supported by monitoring and evidence and based on risk-management principles.
- The new IFOA will better protect threatened species and their habitat through a greater emphasis on landscape-based measures
- The new IFOA framework will be credible and transparent.

Each component of the current coastal IFOAs will be reviewed as part of the IFOA remake. The NSW Government will deliver a new IFOA, by revoking the current IFOAs and issuing a single IFOA covering the Upper North East, Lower North East, Southern and Eden forest agreement regions.

The NSW Government is also proposing a range of legislative amendments to support changes to the coastal IFOAs and deliver the objectives of the IFOA remake. The legislative amendments are being developed as part of the IFOA remake process and are also presented in this paper for community feedback.



Native forest operations in Lower Bucca State Forest, near Coffs Harbour on the NSW north coast (FCNSW).

3. Stakeholder engagement

The NSW Government is committed to consulting with stakeholders and the broader community during the IFOA remake through a three-stage stakeholder engagement process.

Stage 1

The first stage of stakeholder consultation involved targeted consultation with peak conservation and industry groups as well as key government agencies (NSW and Australia Government) in August and September 2013. The aim of this consultation was to identify key issues for the IFOA remake. Feedback received during Stage 1 has been used to inform the development of this discussion paper.

Stage 2

The second stage of consultation commences with the six-week exhibition of this discussion paper. During this time the NSW Government invites the community to make written submissions on the proposed key elements of the new IFOA presented in this paper. The EPA, FCNSW and DPI will also conduct a series of community information sessions to provide further information on key issues, seek feedback and help facilitate written submissions from the community.

Following the public exhibition period the EPA, FCNSW and DPI will review and consider written submissions prior to drafting a new IFOA for coastal NSW for public consultation in Stage 3.

Stage 3

The new draft IFOA will be placed on public exhibition for six weeks during the third stage of public consultation in mid-2014.

Due to the wide range of issues currently being considered as part of the remake, the draft IFOA may include changes that have not been outlined during the second stage of consultation. This could include changes to the IFOA because of feedback received in Stage 2 and/or refinements or additional work completed by the agencies following the second stage of public consultation. Supplementary information will be released with the draft IFOA to support any changes or additions and to indicate how public feedback from the second consultation stage informs the new draft IFOA.

The public will be invited to make written submissions on the draft IFOA which will be incorporated into the final IFOA and any associated legislative amendments. During this third stage of consultation the EPA, FCNSW and DPI will also conduct targeted information sessions with peak stakeholder groups.

4. The NSW forestry framework

The *Forestry and National Parks Estate Act 1998* was first introduced in NSW in 1998 to fulfil the objectives of the National Forest Policy Statement and ensure that NSW adopted ecologically sustainable forest management (ESFM) practices. In 2012 this Act was replaced by the *Forestry Act 2012* and the *National Park Estate (Land Transfers) Act 1998*.

The *National Park Estate (Land Transfers) Act 1998* provides for the transfer of certain State forest and other Crown lands to the national park estate and to Aboriginal ownership. The *Forestry Act 2012* provides for the NSW Forest Agreements and a system of integrated forestry approvals.

The *Forestry Act 2012* changes the application of other legislation to forestry operations to which the IFOAs apply. In particular:

- Environmental planning instruments made under *the Environmental Planning and Assessment Act 1979* cannot prohibit, require development consent for, or otherwise restrict, forestry operations covered by an IFOA. Part 5 of the *Environmental Planning and Assessment Act 1979* does not apply to the granting of, or amendment to, the IFOA; nor does it apply to the carrying out of forestry operations covered by the IFOA. Part 5 may apply to proposals to carry out forestry activities not covered by an IFOA.
- Stop work orders under the *National Parks and Wildlife Act 1974* and *Threatened Species Conservation Act 1995* and interim protection orders under the *National Parks and Wildlife Act 1974* do not apply to the carrying out of forestry operations covered by an IFOA. However, orders may still be made under the *National Parks and Wildlife Act 1974* for the purpose of protecting any Aboriginal object or place.
- The land to which an IFOA applies cannot be proposed or identified as, or declared to be, a wilderness area under the *Wilderness Act 1987* or the *National Parks and Wildlife Act 1974*.
- The ability for third parties to bring proceedings against FCNSW for alleged environmental offences is removed.

4.1 The NSW Forest Agreements

NSW Forest Agreements set the strategic framework for the cooperative management of forests in NSW. The Forest Agreements recognise that all aspects of environmental protection and social and economic development, as they relate to forests, should be integrated and comprehensive. As such the NSW Forest Agreements are jointly signed by NSW Ministers administering environmental, planning and forestry legislation.

There currently are four NSW Forest Agreements covering coastal NSW: the Upper North East, Lower North East, Southern and Eden. The agreements contain provisions for promoting ESFM, sustainable timber supply, community consultation and Aboriginal involvement in forest management, including Native Title rights and interests.

The NSW Forest Agreements run for 20 years and commenced between 1999 and 2002. The Upper North East, Lower North East and the Eden Forest Agreements expire in March 2019 and the Southern Forest Agreement expires in May 2022.

4.2 Relationship to Commonwealth Agreements

Comprehensive regional assessments were completed between 1996 and 2000 to inform the development of RFAs and NSW Forests Agreements. The regional assessments included an assessment of environmental and heritage values; economic and social values; timber values; and ESFM of forests in the region.

There are three RFAs in NSW for the North East, Southern and Eden regions. The NSW RFAs run for 20 years and commenced between 1999 and 2001. The Eden RFA expires in August

2019, the North East RFA expires in March 2020 and the Southern RFA expires in April 2021. The NSW Minister for Environment is responsible for the RFAs signed with the Commonwealth.

The RFAs remove the requirements of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* for FCNSW operations. The RFAs also remove the need to seek an export licence from the Australian Government for wood chips derived from native forests.

4.3 Integrated Forestry Operations Approvals

As shown in Figure 1, the four current IFOAs in coastal NSW correspond with the NSW Forest Agreement for Eden, Southern, Upper North East and Lower North East.

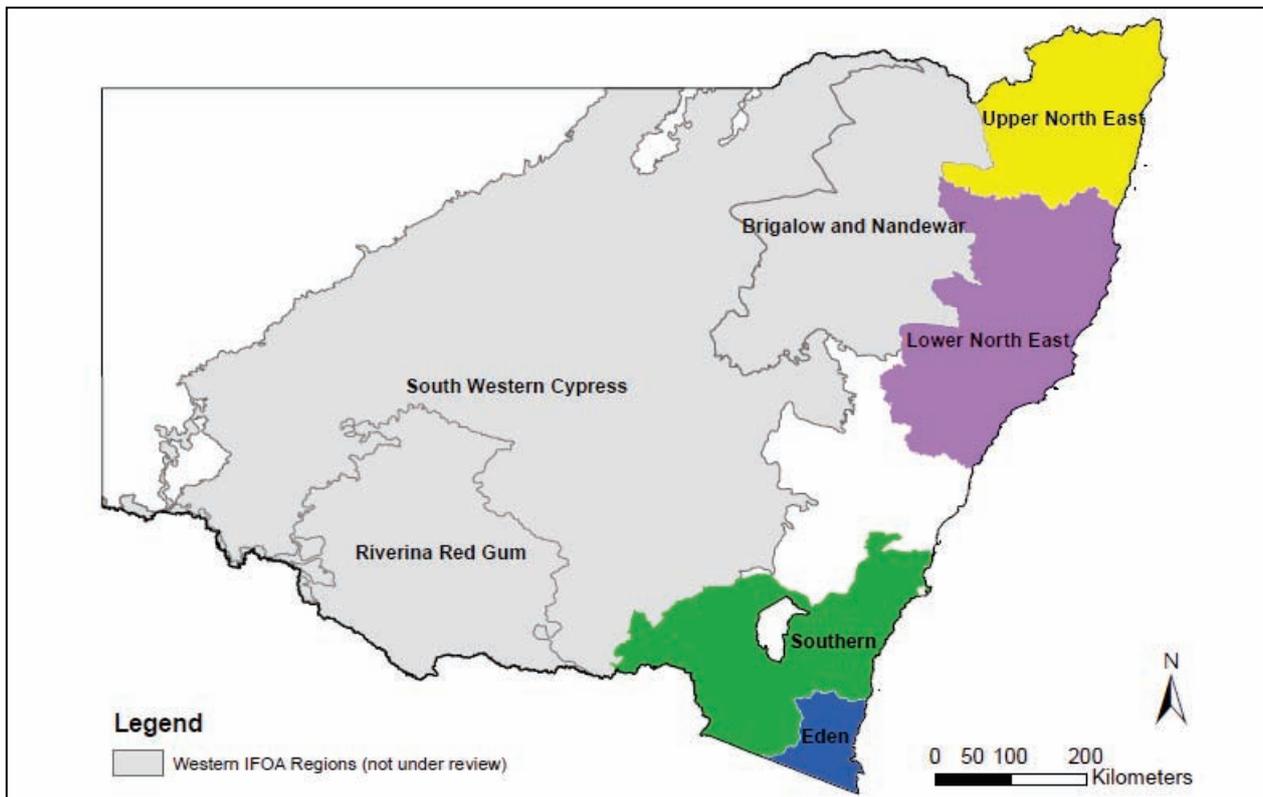


Figure 1. NSW Coastal IFOA Regions - Map

The IFOAs for coastal NSW were jointly negotiated in the late 1990s and early 2000s. The commencement and expiry dates for the coastal IFOAs are outlined in Table 1 below.

IFOA	Date commenced	Date of expiry
Eden region	1 January 2000	31 December 2018
Lower North East region	1 January 2000	31 December 2018
Upper North East region	1 January 2000	31 December 2018
Southern region	13 May 2002	31 December 2020

Table 1. Duration of coastal IFOAs

The IFOAs set out the terms and conditions under which all forestry operations (including logging) may occur in each region and apply to anyone carrying out forestry operations on State forests and other Crown-timber lands.

The IFOAs are intended to integrate the regulatory regimes for environmental planning and assessment, the protection of the environment and water and threatened species conservation. As such, the current IFOAs contain:

- provisions applying to forestry operations generally (known as non-licence terms)
- terms of the Environmental Protection Licence (EPL) under the *Protection of the Environment and Operations Act 1997* (POEO Act)
- terms of the Threatened Species Licence (TSL) under the *Threatened Species Conservation Act 1995*
- terms of the Fisheries Licence (FL) under Part 7A of the *Fisheries Management Act 1994*.

The EPA regulates FCNSW compliance with the non-licence terms, the EPL and the TSL component of the IFOAs and DPI regulates FCNSW compliance with the FL.



A log truck exiting Lower Bucca State Forest, near Coffs Harbour on the NSW north coast (FCNSW).

5. The proposed coastal IFOA structure and framework

As outlined in Section 2, the structure of the current coastal IFOAs is neither efficient nor effective. Each coastal IFOA contains over 2000 conditions, creating an operating environment based largely around process. While these conditions were intended to provide a surrogate for meeting ESFM objectives, the IFOAs have not kept pace with regulatory best practices and do not take into account the risks of environmental impacts in a regional or landscape context. The IFOAs also lack the ability to adapt and respond to changes in knowledge, new operational practices or advances in technology.

The NSW Government's proposed new coastal IFOA adopts a structure that is outcomes-based, reflects best practice regulation and effectively integrates TSL, EPL and the FL requirements.

The aims of the new IFOA structure are to:

- ensure conditions are consistent and outcomes-based
- ensure conditions are practical to implement and enforce
- provide controls that are commensurate to the risk
- allow suitable amendments in an efficient and timely manner
- improve ease of implementation by reducing the number and complexity of conditions.

This section provides an outline of the proposed IFOA's structure; key features and coverage; regulatory approach to monitoring and enforcement compliance; and proposed legislative amendments to support changes to the IFOAs.

5.1 A new IFOA and licence structure

The new licensing framework will reduce the costs associated with implementation and compliance and improve clarity and enforceability. The NSW Government proposes to achieve these objectives by:

- moving from the four current IFOAs to a single integrated IFOA covering all coastal Forest Agreement regions
- integrating the general (non-licence) terms and the conditions of the EPL, TSL and FL
- removing duplication
- aligning conditions aimed at managing similar aspects
- better protecting threatened species through a greater emphasis on landscape based measures.

Delivering a single IFOA will help ensure consistency of requirements and implementation across the coastal forest estate. Regional differences, such as different species needs and harvesting practices, will continue to be recognised under the new single coastal IFOA.

It is proposed that the new IFOA be comprised of four key sections:

1. *Administrative conditions* – general and integrated administrative requirements including broad objectives, authorisations, definition and reporting requirements that would apply to the whole IFOA.
2. *Planning conditions* – all operational planning requirements. Existing longer-term planning requirements, such as annual logging plans, will be reviewed and where relevant will be included in the Administrative conditions section.
3. *Operational conditions* – on-ground operational requirements and expected outcomes.
4. *Monitoring and reporting conditions* – targeted at assessing the effectiveness of the IFOA in achieving its purpose and environmental outcomes.

The licence conditions will be supported by supplementary material, including enforceable protocols and other best-practice guidance material that will expand on the licences, introduce greater flexibility and improve enforceability.

This approach is illustrated in Figure 2 below.

Integrated Forestry Operations Approval Framework

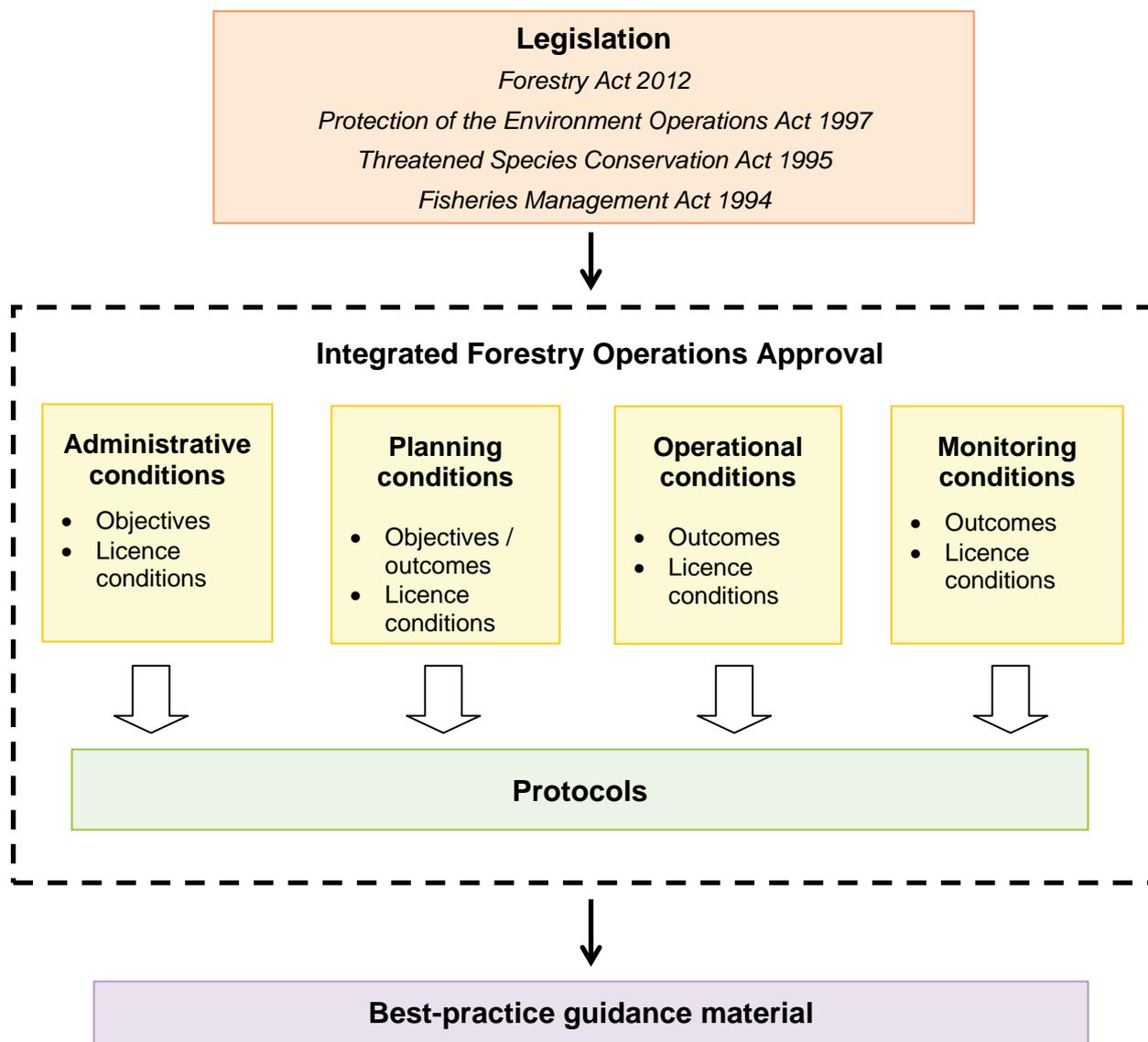


Figure 2. New IFOA licence structure

Outcomes-based

The NSW Government is proposing to make the new coastal IFOA outcome focused. Outcomes-based regulation involves moving away from a reliance on detailed and prescriptive rules towards more high-level, broadly-stated principles that set the standards of practice and make the required outcome clear. It is proposed that the new IFOA be outcomes-based by introducing a focused, structured approach, with a clear hierarchy of outcomes and conditions supported by protocols and supplementary guidance material.

To achieve this, each section of the licence would include a series of outcomes and associated licence conditions. For administrative and planning conditions this may include an objective statement. For operational conditions, outcome statements would describe the desired physical environmental standards.

The specified outcome would be explicitly stated in the IFOA and the associated licence conditions would form the mandatory actions or controls essential to achieving the outcome. Any

existing prescriptive, detailed and/or procedure-based provisions that are not critical to achieving the outcomes will be considered for their relevance and may be included in supporting protocols or guidance material.

This would reduce the prescriptive nature of licence conditions and provide clarity around their intent. It would also provide FCNSW with more flexibility to determine how specified environmental outcomes are met, while still providing the EPA and DPI certainty in terms of expected compliance outcomes.

Landscape-focused

It is proposed that the new IFOA will protect many threatened species through a landscape-based approach. In summary, this means identifying and protecting forest features utilised by a number of different species, regardless of whether a species is observed there. Forest features include trees with hollows, rainforest, old growth forest, rivers and wetlands. The landscape approach aims to ensure that these important habitat features are retained and protected as part of the general conditions of the licence at each site and across the broader landscape, to allow threatened species to survive and avoid harm from forestry operations.

The landscape-based approach reduces the need to locate threatened species through costly surveys, which are often inefficient and ineffective. It is recognised that a landscape-based approach does not adequately cater for all species, particularly threatened plant species. Under the new IFOA, species-specific surveys will still be required to cater for species not captured by landscape-based protection.

Taking a landscape-based approach is a common environment protection practice in jurisdictions such as Tasmania, Canada and the United States of America. It has been successfully used to ensure threatened species habitat is maintained during and after logging, which improves the ability of species to continue to use an area and helps forests return to their pre-logging state more swiftly.

Best-practice regulation - using protocols and guidance material

The NSW Government proposes to develop enforceable protocol documents that sit outside, but are linked to the IFOA. This approach is already used successfully in the regulation of the environmental performance of a number of different industries. The IFOA will include conditions that require protocols to be implemented where necessary to achieve the specified outcome and comply with the licence conditions. Protocols may include essential best practice/procedures, approved methodologies and agreed templates or procedures.

The licence and protocols will be supplemented by guidance material developed by FCNSW in consultation with EPA and DPI. This material will be used to inform FCNSW operational decision making, supplementing the IFOA conditions and protocols where necessary with practical guidance on how a particular operation should be conducted. While they will be linked to an enforceable outcome, the guidance material will not be strictly enforceable.

By using guidance material in place of strict process-based regulation, FCNSW will have increased flexibility to determine how to achieve the outcomes specified in the licence. FCNSW may choose not to apply guidance material to a given operation or activity and instead apply alternative measures to ensure licence outcomes are met and licence conditions are complied with. FCNSW will be required to meet the outcomes specified in the new IFOA in situations where guidance material is used and will be regulated on this basis.

The existing IFOAs include many conditions that are unenforceable in practice and may not be critical to achieving environmental outcomes. These conditions include reference to actions that 'should' be implemented 'to the greatest extent practicable'. The use of protocols will help improve the enforceability of the new licences by stating the mandatory actions that are critical to meeting specified environmental outcomes. Actions that are not critical to achieving environmental outcomes will be reviewed and, where appropriate, will be included in guidance material.

The inclusion of protocols that sit outside, but are linked to the IFOA, will provide for a more streamlined licence; allow for similar requirements and/or procedures to be aligned; and enable a more flexible review and update process. This approach will help ensure that guidelines, methodologies and procedures are maintained or improved in line with new information and changes to best practice over time.

Protocols forming part of the new coastal IFOA will be finalised to coincide with its commencement. Guidance material will also be developed prior to commencement and will continue to evolve and be added to over time.

Better integration and alignment of conditions

The current IFOAs do not effectively integrate the EPL, TSL and FL licence conditions, many of which are repeated throughout the licences. For example requirements for FCNSW to maintain a compliance register (a record of each identified non-compliance) is duplicated in each of the three licences under the IFOA. Some of the duplicated conditions are also inconsistent and can result in confusion during implementation and regulation. For example, the EPL, TSL and FL currently have different requirements for the protection of the same drainage features and wetlands.

The proposed new IFOA structure will be better integrated with the conditions of the general terms, and the EPL, TSL and FL aligned and grouped by environmental outcomes rather than by licence type. This will remove much of the duplication and repetitiveness of the current IFOAs. Aligning like conditions for areas such as drainage protection will minimise confusion on the ground and better facilitate compliance with licence conditions.



Environment Protection Authority officer measuring native species habitat trees near Batemans Bay (EPA).

5.2 Regulatory approach under the new coastal IFOA

Under the new IFOA licence structure, regulatory action will continue to focus on whether environmental outcomes have been achieved. The regulatory agencies (EPA and DPI) will continue to audit compliance against the conditions of the licences. Should the regulatory agencies identify instances of non-compliance, any resulting regulatory action will be based on consideration of the specified environmental outcomes and the degree to which the environmental outcomes have been compromised.

This approach will ensure that operational and regulatory practice is focussed on specified environmental outcomes and standards that must be achieved, rather than on procedure-based, administrative conditions with little or no impact on environmental outcomes. This approach will also help ensure the coastal IFOA acts as a preventative, rather than punitive, tool and a proactive means of minimising the risk of occurrence of harm.

The new licence framework will be supported by a strategic monitoring program to evaluate the effectiveness of the IFOA in achieving environmental outcomes over time and in line with statutory review timeframes and inform continuous improvement.

Further information on the proposed approach to environmental monitoring is outlined in Section 10.

5.3 Proposed legislative amendments

To support and facilitate changes to the IFOA framework, the NSW Government proposes to make a number of legislative amendments to the *Forestry Act 2012* and the POEO Act. Further information on each proposed amendment is provided below.

Additional legislative amendments may be identified as the IFOA remake process continues. Information on any further proposed amendments will be made available for consideration by stakeholders and the community during Stage 3 of the IFOA remake.

Make the non-licence terms of the IFOA enforceable

The current IFOAs include provisions (the non-licence terms) that sit outside the EPL, TSL and FL and apply to forestry operations generally. These non-licence terms can currently only be enforced by the relevant Minister bringing proceedings in the Land and Environment Court under section 69S of the *Forestry Act 2012*. Given that court proceedings are not always the most effective way of remedying breaches of the general provisions, the existing non-licence terms are largely unenforceable.

The NSW Government proposes to amend section 69S of the *Forestry Act 2012* to insert offence and penalty provisions for non-compliance with the non-licence terms, as well as regulatory powers similar to those Part 7 of the POEO Act (e.g. investigatory powers).

It is also proposed that the enforcement powers in the *Forestry Act 2012* for the non-licence terms be delegated from the Minister for the Environment to the EPA, to enable the EPA to bring proceedings forward.

This proposal would be consistent with the original intent of the *Forestry Act 2012* to allow greater integration and coordination of forest regulation and management. It would also improve the regulatory framework's credibility and help ensure that environmental performance is maintained and improved over time.

Ensure the Environment Protection Licence is always 'on'

Under the current IFOAs, FCNSW holds an EPL issued under the POEO Act. Many logging operations on public land are 'non-scheduled' because they do not meet the POEO Act Schedule 1 criteria for 'logging operations'. For these 'non-scheduled' operations FCNSW may choose to not 'turn on' the EPL.

The NSW Government proposes to review and amend the criteria for 'logging operations' under Schedule 1 of the POEO Act to ensure it reflects current logging practices on crown-timber lands in coastal NSW. This will enable the EPL to be 'switched on' during all logging operations.

Following the review, any proposed changes to the Schedule 1 criteria will be released during Stage 3 of the IFOA remake for comment.

Introduce minimum competencies for forest contractors

FCNSW increasingly uses contractors to plan and carry out harvesting operations. While the liability for compliance with the IFOAs currently rests with FCNSW, a system of accountability for contractors may be of benefit.

The NSW Government proposes that legislation be introduced to enable a framework for minimum competencies for forest contractors to be developed and introduced through regulation. Setting minimum competencies for forest contractors would help address liability issues and create an incentive for FCNSW and its contractors to meet relevant regulatory requirements. It may also provide opportunities for contractors to move geographically and operate across public and private tenures.

The EPA already uses similar regulatory models in relation to contaminated site accredited auditors, waste transporters and dangerous goods.

Strengthen penalties and alternative regulatory tools

A key component of the success of the IFOA remake will be to review the penalties and sanctions available in relation to forestry operations on Crown-timber lands to ensure they reflect regulatory best practice and provide a framework that encourages voluntary compliance.

The NSW Government will review the forestry related penalties and sanctions as part of the IFOA Remake.

Improve access to information about amendments

The existing requirements under the *Forestry Act 2012* for information associated with the IFOAs to be made publically available are inefficient and do not reflect advances in technology such as the internet. Currently, the Minister for the Environment must advertise amendments in state and regional newspapers and make hard copies of the amendments available in the office of the Department of Premier and Cabinet for public inspection.

The NSW Government proposes to amend the *Forestry Act 2012* to require the EPA to use the internet as the main mechanism for making the IFOAs publically available and notifying the community about amendments. Paper copies of amendments will still be made available upon request from FCNSW, the EPA and DPI.



Interagency inspection of drainage lines, Lower Bucca State Forest (DPI).

6. What will the new coastal IFOA cover?

Area of NSW to which the new coastal IFOA apply

The NSW Government proposes that the new coastal IFOA cover the area of NSW corresponding to the existing Eden, Southern, Upper North East and Lower North East IFOAs.

Forestry operations to be covered by the IFOA

The *Forestry Act 2012* allows for the making of IFOAs that authorise FCNSW to carry out certain 'forestry operations' in accordance with the terms of the IFOA. When an IFOA is granted, other legislative requirements cease to apply to the forestry operations covered by the approval, including Parts 4 and Part 5 of the *Environmental Planning and Assessment Act 1979*.

The objectives of the remake of the coastal IFOAs are to improve the effectiveness, efficiency and enforceability of the licences. In line with these objectives, the NSW Government proposes to limit the coverage of the IFOA to activities that are directly linked to logging operations.

The proposed approach is consistent with amendments made to the *Rural Fires Act 1997* in 2012 to bring bushfire hazard reduction work in IFOA regions into line with the standards for other public land managers. FCNSW can obtain a bushfire hazard reduction certificate under the *Rural Fires Act 1997* when carrying out bushfire hazard reduction work.

Table 2 below outlines the changes being proposed to the range of activities authorised under the new coastal IFOA.

TABLE 2 – ACTIVITIES REGULATED UNDER THE COASTAL IFOAs

ACTIVITY	CURRENT APPROACH	PROPOSED APPROACH
<p>Volumes of timber that can be harvested</p>	<p>Current coastal IFOAs support a sustainable and value-added industry by:</p> <ol style="list-style-type: none"> Setting limits on the volume of high quality and large veneer timber that can be removed (and pulpwood in the Eden Region). These volumetric limits have the dual purpose of supporting RFA and FA commitments to supply wood to a value-added timber industry and to ensure that volume removal does not exceed sustainable levels. Including operational requirements that require FCNSW to: <ul style="list-style-type: none"> only conduct forestry operations that have a principle purpose of producing higher quality logs prohibit pulp-only operations ensure that timber harvested is categorised as its highest quality product. 	<p>No change to current provisions</p>
<p>Silvicultural practices, including thinning</p>	<p>Current IFOAs specify that the approvals only apply to logging activities conducted under certain silvicultural practices. Silvicultural provisions allowed under the current IFOAs include Australian Group Selection, Single Tree Selection, Thinning and Alternative Coupe Logging.</p> <p>Some silvicultural practices, such as Australian Group Selection, are limited by the extent of permissible harvesting and also temporal and spatial return times. The current requirements are unenforceable.</p>	<p>Current specification of allowable silvicultural practices will be removed. The new IFOA will still include tree retention requirements. The new IFOA will also include specific conditions that place limits on the conduct of logging operations in space and time (based on ecological objectives and outcomes) rather than specifying what silvicultural practices must be applied.</p>
<p>Regeneration</p>	<p>Current IFOAs cover management activities that relate to improving regeneration success (such as replanting).</p> <p>Existing conditions require FCNSW to undertake post-logging surveys to assess, amongst other things, the nature and extent of regeneration occurrence. The current requirements are unenforceable.</p>	<p>Coverage of activities related to the achievement of regeneration is proposed to remain.</p> <p>Current unenforceable requirements to be replaced by requirements for FCNSW to meet specified regeneration standards. These standards would include requirements such as setting regeneration targets and a robust and repeatable survey and monitoring approach.</p> <p>More information on the proposed regeneration framework is available on the EPA's website (http://www.epa.nsw.gov.au/foresta/requirements/coastIFOAs.htm).</p>
<p>Forest products operations</p>	<p>Current IFOAs apply to forest products operations, such as harvesting products of economic value other than timber (e.g. plants and plant material such as seeds, bark, tea tree oil).</p> <p>The EPA has had no regulatory focus on forest products operations over the past five years.</p>	<p>The new IFOA would only cover the removal of forest products from areas that are actively being logged or have been recently logged.</p> <p>FCNSW would continue to issue permits for the removal of forest products under the <i>Forestry Act 2012</i>. The new IFOA would specify that permits issued by FCNSW must contain conditions requiring the holder to comply with relevant prescriptions in the IFOA.</p> <p>In compartments where FCNSW is not logging or has not recently completed logging, FCNSW may be required seek approval under planning legislation, if the environment impact of the activity is significant.</p>

ACTIVITY	CURRENT APPROACH	PROPOSED APPROACH
Burning	Current IFOAs cover the conduct of hazard reduction burning on State forests. Hazard reduction activities can be conducted in accordance with the Bush Fire Environmental Assessment Code made under the <i>Rural Fires Act 1997</i> .	<p><i>Post-harvest burning</i> – The new IFOA would contain enforceable conditions for burns conducted within two years of a logging operation.</p> <p><i>Pre-logging burns</i> – Where necessary, the new IFOA would contain enforceable conditions to address the timing of any pre-logging burns conducted under the Rural Fires Act. This will help ensure that threatened species surveys prior to the conduct of logging activities are not compromised.</p> <p><i>Other hazard reduction activities</i> – conducted in accordance with the Bush Fire Environmental Assessment Code.</p> <p>The new IFOA would not cover heritage matters.</p> <p>FCNSW will still be required to meet general legislative requirements under the <i>Heritage Act 1977</i> and the <i>National Parks and Wildlife Act 1974</i>. This includes requirements for FCNSW to implement specific due diligence guidelines adopted under the National Parks and Wildlife Regulation 2009.</p>
Heritage - Aboriginal and non-Aboriginal	Current IFOAs require FCNSW to protect Aboriginal and non Aboriginal heritage by: taking into consideration the <i>Cultural heritage guidelines</i> (State Forests of NSW, December 1999); periodically and regularly reviewing records concerning heritage items; identifying and protecting heritage items; consulting with Aboriginal communities; and training staff.	Heritage matters covered by the current IFOAs are also covered under other regulatory instruments, such as due diligence guidelines adopted under the National Parks and Wildlife Regulation 2009.
Bee-keeping	Current IFOAs cover bee-keeping activities.	The new IFOA would not cover this activity.
Grazing	Current IFOAs contain some auditable requirements in the non licence terms, such as restricting the setting down of hives in forest management zone exclusions. FCNSW issues permits to commercial beekeepers under the <i>Forestry Act 2012</i> . EPA has had no regulatory focus on beekeeping activities over the past 5 years.	<p>It is proposed to amend the <i>Forestry Act 2012</i> to require FCNSW to develop, implement, maintain and review a strategic plan for beekeeping for approval by the EPA/Office of Environment and Heritage and DPI. Requirements for the strategic plan will be made available in Stage 3 of the IFOA remake for public consultation.</p> <p>The intent of the amendment is to allow beekeeping activities to continue in State Forests without the need for further statutory approvals.</p> <p>The new IFOA would not cover this activity.</p> <p>It is proposed to amend the <i>Forestry Act 2012</i> and require FCNSW to develop, implement, maintain and review a strategic plan for grazing for approval by the EPA/Office of Environment and Heritage and DPI. Requirements for the strategic plans will be made available in Stage 3 of the IFOA remake for public consultation.</p> <p>The intent of the amendment is to allow grazing activities to continue in State Forests without the need for statutory approvals other than under the <i>Forestry Act 2012</i>.</p>
Weed and pest control	Current IFOAs require FCNSW to prepare pest and weed management plans following a template approved by the EPA.	Provisions of the <i>Rural Lands Protection Act 1998</i> and <i>Noxious Weeds Act 1993</i> apply in addition to IFOA requirements.
Ancillary road construction	EPA has had no regulatory focus on weed and pest control over the past 5 years.	The new IFOA would not regulate this activity.
	The provision of roads ancillary to the above operations are covered by the IFOAs. Current IFOAs contain requirements for fire trail and road management plans and place restrictions on the construction of ancillary roads in environmentally sensitive areas.	The new IFOA would cover roads constructed and used for the purpose of logging operations and activities ancillary to those operations as described above.

7. Landscape-based protection for threatened species and communities

Impacts on threatened species from forestry operations covered by the IFOAs are managed through the Threatened Species Licence (TSL) issued under the *Threatened Species Conservation Act 1995* and the Fisheries Licence (FL) issued under the *Fisheries Management Act 1994*.

The TSL mitigates impact on numerous land-based threatened species through targeted surveys and subsequent prescriptions based on detections. It also applies a number of landscape-based protections, including mapped rainforest and old growth exclusion zones, wildlife corridors and identified habitat protections for large forest owls. Additionally, there are a range of standard prescriptions that apply to harvesting, such as tree retention in harvest areas and drainage feature, riparian habitat and wetland exclusion zones. The FL targets aquatic (fish) threatened species through surveys and a range of aquatic habitat protection prescriptions and standards for fish passage on waterway crossings.

The NSW Government has announced its intention to consolidate and modernise all biodiversity related legislation in NSW. This includes the *Threatened Species Conservation Act 1995* and parts of the *Fisheries Management Act 1994* and the *National Parks and Wildlife Act 1974*. Any implications for the IFOAs will be considered once this review is complete.

7.1 Weaknesses in the current approach to managing impacts on threatened species and communities

The TSL component of the current coastal IFOAs is difficult to interpret, implement and enforce. Each TSL is over 100 pages long, is not integrated with the conditions of the EPL and the FL and in many cases, licence conditions focus on process not outcomes.

The current TSLs rely on surveys for many threatened species, with site-specific conditions to be applied when records of that species are found during surveys. Surveys are costly to implement and there is frequently a poor link between the survey effort and environmental outcome. The new IFOA will be more outcome-focused by moving towards greater landscape protections, rather than targeted surveys.

Additionally, the current coastal IFOAs do not cover the impact of forestry operations on threatened ecological communities (TECs), as these had not been listed when the original coastal IFOAs were signed.

Case study – effectiveness and efficiency of the Lower North East TSL

This case study uses examples from the Lower North East IFOA to illustrate the issues with the TSL's current approach to the protection of threatened species and communities.

Focus on process rather than outcomes

The current koala conditions are overly complex, appearing in three different sections of the TSL. These conditions largely describe the process and definitions that determine how koala searches are conducted, including specifying that the base of feed tree species must be inspected "thoroughly" for koala faecal pellets known as 'scats' every 10 metres. If the search finds a tree with 20 scats under it, multiple nearby trees with scats or any trees with scats of two distinctly different sizes, or a koala is observed, then an additional search is triggered to determine koala activity level.

This condition focusses on the process for searching for the presence of koalas and activity levels rather than the objective of the condition, which is to protect important and currently occupied koala habitat and retain preferred koala browse trees. The current condition is very time consuming to implement and searches under different trees or on different days can

produce a different result. Conditions such as these are difficult to enforce due to complexities associated with establishing whether a search was done “thoroughly” or what number and size of scats the person doing the search observed. While the condition has strict requirements on how and which trees to search under, it has no size or quality requirements on the browse trees that actually have to be retained for koalas.



Koala (*Phascolarctos cinereus*) and joey in tree (D Lunney/OEH).

Effectiveness of traverse survey requirements for locating dens, nests and roosts

The TSL for the Lower North East IFOA region requires species protection zones around significant sites such as roosts, dens or nests for 20 threatened species and three groups of species (tree roosting bats, cave roosting bats and flying fox camps). The species protection ‘exclusion’ zones range from 20 metre radius (0.125 hectares) around a regent honeyeater nest to 12 hectares around a tiger quoll maternity den.

These conditions give the impression that the species are ‘protected’ under the licence. However, the species protection zones are only triggered if a nest, den or roost is actually located. To locate these features, the TSL requires that nests, dens and roosts of the relevant species be searched for during a compartment traverse survey. These surveys are carried out at a rate of four person hours for every 200 hectares. Nests, dens and roosts can also be recorded incidentally while undertaking other activities in the compartment.

Despite their intent, many of the protection zones in the current licence have had little or no impact on the ground. Threatened species features, such as den sites, by their nature are often difficult to find or observe without specific targeted measures such as stag watching or radio-tracking. For example, FCNSW has undertaken more than 5260 traverse surveys over more than 6971 kilometres of traverse in the Lower North East Region since 1998. Wildlife Atlas records reveal that since the IFOA commenced, only 11 nests, dens or roosts of five species have been found during these surveys, and that for the majority of species no nests, dens or roosts have been located.

The lack of den, roost and nest records is not necessarily indicative of low abundance or decline, as many of the species have been regularly recorded during pre-harvesting surveys. There have been over 4000 yellow-bellied glider detections, 2000 large forest owl detections and 1700 tiger quoll detections across the North Coast since surveys were introduced in 1997. The frequency of detections but lack of required actions under the TSL is indicative of an inefficient licence approach, suggesting that a general condition would be more effective for these species.

Effectiveness of targeted survey requirements

The NSW Government believes that the targeted survey approach used in the current IFOAs can be highly inefficient and that improvements in environmental outcomes over the past 15 years as a result of the surveys has been negligible, particularly when compared to the significant cost and effort required to undertake them.

The TSL for the Lower North East IFOA region requires targeted surveys for nine riparian frog species and a separate survey for the two bat species. The total cost of implementing these surveys since 1998 is over \$1.7 million.

When a record of one of these species is found during a survey, a site-specific protection zone is applied. For example if a golden-tipped bat is found, an exclusion zone 30 metres wide must be applied to all first and second order streams within a 200m radius of the record.

Although these surveys across the North Coast have generated over 1200 barred-river frog and over 500 golden-tipped bat records, they have not resulted in significant additional habitat protection.

A sample of 51 sites, in the Lower North East region, where survey records of riparian frogs and bats triggered exclusion zone prescriptions, found that more than 95% (or 277.6 hectares) of the required exclusion zone was already located within other broad landscape exclusions such as stream, wetland and rainforest protection zones. This means that for these survey sites, only 14.4 hectares of additional exclusion areas have been required since the IFOA commenced. This highlights that the general landscape protections are delivering meaningful protection for these species without the need for costly surveys.

7.2 Proposed move to strengthened, multi-scale, landscape-based protections for threatened species and communities

The NSW Government is proposing to move protection for threatened species and communities towards a model recognised in the literature as a strategic landscape-scale approach, with conservation measures applied at multiple spatial scales based on:

- large ecological reserves
- application of landscape-level measures in off-reserve areas
- application of stand-level measures in off-reserve areas
- monitoring and adaptive management.

This proposed approach aims to protect habitat features that are important for a broad range of threatened species at multiple scales and implement outcomes-effectiveness monitoring to ensure the conditions are achieving the intended objectives. However, it is recognised that, given the nature of certain threatened species, there will be an ongoing need for some site- or species-specific provisions under the new IFOA.

The objective of this significant change is to ensure sufficient and adequate habitat resources are provided at the site, local and broad landscape scale. It is proposed that the IFOA focuses specifically on habitat resources and characteristics required by a broad range of threatened species that might be harmed in forestry operations, such as hollow-bearing trees, woody debris, food resources, wetlands and rainforest.

In addition, the NSW Government is seeking to develop a framework that is:

- efficient, effective, practical and cost-effective to implement and audit
- outcomes-based, informed by scientific evidence or information
- informed by targeted ongoing monitoring to assess key outcomes
- appropriate in scale to allow for the conduct of forestry operations as a commercial enterprise.

The NSW Government believes this approach will ensure important habitat features are retained and protected at each site and across the broader landscape, allowing threatened species to persist in areas where forestry operations have occurred. The NSW Government also

recognises that the multi-scale protection of important habitat resources will not address all species, particularly those with limited geographic ranges such as many threatened plants. The proposed IFOA will include specific provisions to address these species when identified.

The proposed changes to the TSL will reduce reliance on site-specific measures for individual species where appropriate. At the same time, the overall level of protection provided to threatened species, at all scales, will be enhanced. The licence will be more effective in protecting threatened species from harm and more cost effective and efficient to implement.

These changes will be supported by the proposed licence structure, which will remove duplication between the non-licence terms, the EPL, FL and TSL and allow like conditions to be grouped to make them more practical to implement and enforce.

The main elements of the proposed landscape-based approach are outlined below.



Aerial view of young regrowth in forest in Nadgee State Forest near Eden in the South East region (FCNSW).

General licence conditions

Conditions for the protection of threatened species habitat at a broad landscape scale

An established network of areas excluded from logging operations at the broad landscape level will protect important habitat features to allow threatened species to persist in State Forests across NSW.

The broad landscape-based habitat protection network established by the RFAs and previous licence conditions will be retained. This includes:

- Existing RFA commitments to the protection of old growth, rainforest, rare non-commercial forest types and the Forest Management Zone (FMZ) layer will be maintained unchanged.
- Provision for drainage feature protection and ridge and headwater corridors will be retained and mapping will be improved.
- Wetland protection will be retained, however definitions will be simplified and clarified.
- Heath and scrub protection will be retained.
- Rocky outcrop protection will be retained. Definitions will be simplified and clarified
- Nest, roost and den protection will be retained, however licence structure will be simplified.

- Existing owl landscape protection areas and conditions will be reviewed following finalisation of the new landscape approach and species specific provisions.
- Currently protected site-based areas that have been triggered by species records under the current licences will be reviewed and may be retained, modified or excluded depending on appropriateness.

Conditions for impacts at the local landscape scale

The licence will include minimum required thresholds of areas protected from forestry operations at the local scale and maximum thresholds for harvesting disturbance at the local scale over both time and space.

These thresholds are intended to protect a minimum level of refuge habitat and ensure maintenance of a range of forest age classes at a more localised level than provided for by the current licence. This will ensure adequate food and habitat resources are available, and enhance the opportunities for re-colonisation by threatened flora and fauna of areas disturbed by forestry activities.

Threatened ecological communities (TECs)

Another level of general landscape protection conditions proposed is the inclusion of protection measures for TECs in the licence.

For the purposes of the licence, TECs are intended to be defined as:

- areas identified in approved TEC maps, or where this is not available
- with approved field identification keys, or where this is not available,
- by the determination advice provided by the Scientific Committee.

Approved TEC maps and field guides will be developed by EPA, FCNSW, DPI and relevant independent experts.

Logging will be prohibited in TECs unless a plan approved by the EPA/DPI is applied or if specifically exempted under various licence protocols.

A plan will only be approved if it has provisions that protect the specific values of the TEC.

TEC mapping project

The EPA, FCNSW and DPI have commenced work to develop mapping for priority TECs across the State Forest estate. The maps produced through this project will identify TECs for the purposes of conducting forestry operations in accordance with the IFOA and undertaking compliance and enforcement.

The project will involve developing a priority list of TECs that occur on State Forest estate, based on the risk of harm posed by forestry operations. Prioritisation will consider, but is not limited to, the known extent of the TEC within harvestable areas and on other tenures; potential impact of forestry operations on the TEC; adequacy of existing protection measures in mitigating that impact; and the harvesting priority for meeting wood supply arrangements.

The agencies will also agree on the diagnostic characteristics for each of the priority TECs based on Scientific Committee determinations and will seek independent expert advice as appropriate.

Landscape connectivity

Landscape connectivity will be catered for in the general landscape conditions by maintaining a network of forest areas excluded from logging operations that extend across the State forest estate. This multi-scale approach will allow for the movement and dispersal of threatened species, facilitate access to areas of refuge and allow for re-colonisation of areas after harvesting.

Stand-level protection measures

Tree retention

The licence will require minimum thresholds of hollow-bearing trees and recruitment and feed trees to be met at a local landscape scale to ensure adequate shelter and food resources are maintained or enhanced for threatened fauna species.

The revised requirements will clearly set thresholds that are practical to implement, audit and enforce than the current conditions.



A tree hollow used by animals for shelter and nesting (EPA).

Giant trees

Isolated old growth elements (very large/ old trees) that fall outside of existing old growth mapping will be protected from harm during forestry operations.

Habitat clumps

Patches of undisturbed forest (wildlife habitat clumps) will be retained within the harvestable area to retain a variety of undisturbed/undamaged habitat elements representative of the site and enhance re-colonisation of areas following harvesting.

Landscape connectivity

A network of forest areas excluded from logging operations will extend across the State forest estate at a local and landscape scale. This will allow for the movement and dispersal of threatened species, facilitate access to areas of refuge and allow for re-colonisation of areas after harvesting.

Landscape connectivity will be provided through a network of undisturbed vegetation in riparian habitat corridors, and corridors of undisturbed vegetation linking different catchments over ridges.

Burning

Post-harvest burning will be excluded from areas sensitive to damage from burning, such as rainforest and wetlands.

Habitat, recruitment and feed trees required for retention will be maintained where post-harvest burning is applied.

Species requiring additional conditions

Where it is determined that threatened species are not adequately protected by the general landscape conditions, such as the Hastings River mouse and smoky mouse, these species will have additional protections to mitigate any harm from forestry activities. Additionally, rare and/or iconic species, such as koalas, may also require additional species-specific conditions.

Where appropriate, species-specific conditions will apply in specific areas of mapped habitat for the species concerned. Targeted surveys will still be required to locate and protect some threatened fauna and flora species.

All threatened species and or populations will be evaluated by an expert panel to determine if they are adequately covered by the new licence conditions. Further information on this process is provided below at Section 7.3.

7.3 Proposed process developing the licence framework for threatened species and communities

The NSW Government recognises that moving to a landscape-based approach for managing the impacts of forestry on threatened species and communities needs to be underpinned by the best available evidence. The following process is proposed for developing the licence conditions outlined in Section 7.2.

Step 1 – Review of the proposed framework by the Forest Practices Authority of Tasmania

The proposed TSL framework will be independently reviewed by the Forest Practices Authority of Tasmania (FPA).

The FPA is an independent statutory body that administers the Tasmanian forest practices system on both public and private land. It is responsible for regulating the management of forests in Tasmania and has extensive experience in the implementation, regulation, research and evaluation of the effectiveness of multi-scale landscape approaches to protecting threatened species in forestry operations.

The FPA will review and provide advice to the EPA, FCNSW and DPI on:

- the overall licence concept
- the minimum retained basal area for determining the intensity of an operation
- the minimum habitat protection threshold
- the maximum disturbance thresholds
- the size and spacing of wildlife habitat clumps
- measures to ensure clumps are not aggregated
- the maximum size of local landscape scale
- appropriate outcomes monitoring
- the enforceability and effectiveness of the proposed conditions.

Step 2 –Thresholds and limits for landscape licence conditions

The EPA, FCNSW and DPI will consider advice from FPA and any advice from government agency scientists or suitably qualified independent scientists to determine proposed thresholds and limits for the conditions of the licence in the context of the overall remake objectives.

Step 3 – Expert panel review

Following the determination of the proposed thresholds and limits for the landscape conditions of the IFOA the EPA, FCNSW and DPI will convene a panel (or panels) of suitably qualified scientists, including independent scientists with an appropriate knowledge of threatened flora and fauna, to review the list of threatened species and assess which species are likely to be

adequately protected by the new landscape provisions and which will require additional measures.

The panel (or panels) will also provide advice on what additional protection measures are required for species determined not to be adequately protected by the landscape licence conditions and whether any changes could be made to ensure adequate protection.

Step 4 – Draft IFOA licence conditions for public consultation during Stage 3

The EPA, FCNSW and DPI will use the advice from the scientific panel(s) to develop appropriate species-specific conditions and refine any general conditions.

These conditions will be included in the draft IFOA released for public consultation in Stage 3 of the IFOA remake.



Forestry Corporation of NSW staff inspecting Blackbutt regrowth in Orara West State Forest (FCNSW).

7.4 Other Important Issues - Bell miner associated dieback

There are circumstances where forestry operations may influence the state of an area even where they are not directly identified as a key threat, e.g. Bell Miner Associated Dieback (BMAD).

Dieback is a condition that affects the health of trees from the top downward. It spreads through the leaves and branches and often the whole plant will eventually die. The hardwood forests of north-east NSW are increasingly suffering from a form of dieback strongly associated with sap-feeding insects called psyllids, which are in turn strongly associated with the native bell miner or bellbird. Bell miners occur naturally in eucalypt forests, and they normally have a minor (and positive) impact on forests. However, bell miner populations have increased in size, and the birds have become more widely distributed.

In listing BMAD as a key threatening process under the *Threatened Species Conservation Act 1995*, NSW Scientific Committee noted that:

“Due to the complex interaction between factors that have been altered as a consequence of landscape-level disturbance, there is at present no obvious means of arresting the threat presented by [BMAD], expert opinion varies considerably as to which factors are causes of dieback and which factors are effects. Broad-scale research and adaptive management are required to understand how to best manage this threatening process, to prevent its expansion throughout forests of eastern New South Wales”.

Actions taken by FCNSW in relation to BMAD include:

- involvement in the NSW BMAD Working Group since its inception in 2001 (see <http://www.bmad.com.au/workinggroup.php> for more information)
- conducting a large-scale operational trial for controlling BMAD in Mt Lindsay State Forest under the auspices of this working group in 2007. Early results from the operational trial have been published in Peter St Clair. (2010) Rehabilitation of declining stands at Mt Lindesay: a preliminary assessment. *Australian Forestry* 73:3, 156-164, available at <http://www.tandfonline.com/doi/abs/10.1080/00049158.2010.10676321>
- providing the Department of Primary Industries Forestry Unit (Research Branch) with funding to undertake research identifying BMAD and other forest health threats
- completing preliminary mapping of BMAD potential risk to inform long-term management strategies.

8. Soil and water

Maintaining water quality and conducting forestry operations appropriate to the stability of forest soils and landscapes are key environmental requirements for the IFOAs. The EPL issued under the POEO Act contains requirements to minimise the risks of erosion and water pollution. The protection and appropriate management of streams and waterways, particularly with regard to the maintenance of fish passage, are critical to avoiding significant impacts on threatened fish species. Potential impacts on threatened fish protected under the *Fisheries Management Act 1994* are managed under the FL.

8.1 Barriers in the current IFOAs to achieving best practice soil and water protection

The EPL and FL contain numerous conditions specifying how a certain aspect of a forestry operation must occur. These conditions were written over 10 years ago and, while many represent best practice, the EPL and FL were written in the style of a field guide to operations, rather than a strictly enforceable licence. Experience in implementing and regulating the EPL and FL has also shown that some of the current conditions are inconsistent with other parts of the IFOA, overly prescriptive and difficult to enforce.

As outlined in the examples presented below, these issues present real barriers to achieving and assessing compliance with best practice soil and water protection.

Enforceability

The EPL conditions include ambiguous language that makes them difficult to enforce. For example:

- soil erosion and sediment control structures and measures must be “properly” installed, constructed and maintained and prevent “to the greatest extent practicable” the flow of water from the road surface and road drainage structures entering the disturbed areas.

The FL also contains similar language within some conditions that make them open to interpretation. For example:

- “Clearing associated with in-stream works must be undertaken at, or as close as reasonably practicable to, right angles to the flow of water unless angled approaches reduce ground and soil disturbance (condition 8.4.3 bed and bank disturbance).”

Soil and water conditions in the new IFOA will contain unambiguous language to ensure they are enforceable and clearly understood.

Inflexible and prescriptive

Forest roads, if not adequately drained, can erode and lead to land degradation and water pollution. Appropriate drainage structures and outlets built and maintained in the right locations ensure that water can leave the road surface without causing damage or pollution.

The EPL specifies the maximum allowable distance of water flow along roads according to the grade of the road. The steeper the grade, the more often run-off needs to be diverted from the road surface. Under the current IFOAs, there is no flexibility for maintenance or construction methods to be modified over time without amendments to the IFOAs when new information about best practice construction methods emerges.

Recent research has shown these maximum distances can have a detrimental effect on water quality if the pathway for water flow is not taken into consideration. This research shows there can be benefits from allowing for some flexibility to consider the slope of the road; the degree of connectivity of road drainage outlets to the stream network; and the stability of the road and associated drainage structures in setting maximum distances between drains.

The new IFOA will include outcomes-based conditions that require road stability and water quality to be maintained. These conditions will be supported by guidance material that will provide FCNSW with flexibility in determining drainage standards for roads as appropriate to meet the outcomes specified in the licence.



A temporary road drainage structure on a native forest road in coastal NSW (EPA).

8.2 Proposed changes to soil and water protection components of the IFOA

To address the issues outlined above and ensure advances in knowledge and technology are able to be adopted under the new IFOA, it is proposed that a range of changes be implemented to better address soil and water impacts throughout the licence. These changes are outlined below.

Reduce the number of licence conditions and remove duplication between the EPL and other licences

- Existing administrative, planning and operational conditions will be systematically reviewed to assess their relevance.
- The number of repetitive operational conditions will be significantly reduced.

Reduce the prescriptive nature of the IFOAs so the requirements to protect waters and aquatic environments are clear, straightforward to implement, outcomes-based and are enforceable

- The number of conditions will be streamlined and revised to ensure planning conditions are risk-based and relevant to the range of forestry operations covered by the IFOA.
- Outcomes will address key soil erosion and water pollution risks and operating conditions will be practical to implement will be developed.
- The bulk of best-practice management requirements will be in activity based protocols that are practical to implement.

Standardise roading, stream and wetland protection across all IFOA licences and regions

- Licence conditions for roading and stream and wetland protection will be standardised across the licences.

Other changes relevant to soil and water protection covered in other sections of this discussion paper are:

- Ensuring the EPL is 'switched on' all the time – see Section 5.3
- Using LiDAR for drainage feature and slope delineation – Section 9.1
- Monitoring requirements to assess the effective of soil and water conditions and inform future amendments to the IFOA where necessary – see Section 10

Stakeholders will be able to see how these changes are proposed to be implemented during Stage 3 of the IFOA remake when the draft IFOA is released for public consultation.

8.3 Steep slope harvesting trial

The current EPL does not provide for steep slope logging because it limits timber extraction to slopes less than 30 degrees for forestry operations and assumes the use of ground-based extraction methods.

To overcome the inherent limitations associated with ground-based extraction methods on steep slopes, other forestry jurisdictions both in Australia and overseas have adopted alternative methods, including cable extraction. These alternative systems that do not require a network of tracks to extract the timber reduce the potential for soil erosion and water pollution.

FCNSW will conduct a small scale trial to determine which techniques can be used to augment ground-based methods on steep country in coastal NSW. The trial will evaluate the benefits, costs, operational constraints and controls that might be necessary to meet the objectives of access to timber on steep slopes while meeting the IFOA objectives of protecting the aquatic environment and mitigating harm to threatened species.

Further information on the trial is available on the IFOA remake website at <http://www.epa.nsw.gov.au/forestagreements/coastlFOAs.htm>.

9. Adopting new technologies to improve the accuracy and efficiency of the identification of protected areas of environmental significance

The coastal IFOAs have been in operation for over 10 years and have not kept pace with changes in technology. This includes technology that can more accurately identify and map certain features and allow for improved efficiencies in planning and conducting forestry operations in accordance with the IFOAs.

The IFOA remake presents an opportunity for advances in technology to be incorporated into the framework and deliver a more contemporary approach that is fit for purpose. The NSW Government is proposing to adopt the use of new technologies in the new coastal IFOA to more accurately and efficiently locate, identify and classify streams, determine slopes classes and assisting in locating harvest area boundaries and exclusion zones during forestry operations.

9.1 Opportunities presented by LiDAR and Geonet technologies for soil, water and threatened species protection

Current processes – drainage features

The current IFOAs include provisions for the implementation of protection zones around the drainage network. These provisions are intended to maintain corridors of undisturbed vegetation across the landscape that both provide habitat value for wildlife conservation and protect the aquatic environment by providing soil stability and sediment trapping adjacent to drainage features.

Under the current IFOAs, the location of streams that require protection are identified from maps of drainage lines produced using Aerial Photographic Interpretation (API) of 1:25,000 scale photos. These maps are also known as Land Information Centre (LIC) topographic mapping and are managed by the NSW Land and Property Information (NSW LPI). Drainage lines mapped this way have an estimated accuracy of approximately ± 50 metres under dense forest canopies, with many instances of error being greater than 100m.

Because the existing mapped location of drainage lines are only indicative, FCNSW officers must verify the actual location by walking and assessing the entire length of all drainage features to determine their actual location. They must then measure, interpolate and physically mark in the field the outer edge of the protection zone to the best of their ability. A typical harvesting unit may have over 50 km of drainage network to assess on both sides of the feature, often in steep terrain with a very dense understorey. This can make the task of marking protection zones a difficult, costly and at times, unsafe process. Subjectivity in detection and marking also creates complications if compliance issues are identified.

Current processes – slope

The slope datasets currently used to identify areas of soil erosion and water pollution hazard were produced using traditional desktop estimation methods based on the distance between 10 m contour intervals on API-derived contour maps at 1:50,000 scale. The slope classification maps derived from these are coarse and also require field verification.

LiDAR and Geonet

While the current drainage and slope maps have been invaluable over the years, elevation data captured using Light Detection and Ranging (LiDAR) now provides an opportunity to replace these indicative maps with highly accurate data layers.

LiDAR

LiDAR remote sensing technologies can accurately map the terrain underlying the forest canopy and as landscape features such as vegetation. Governments and industries are increasingly using LiDAR technologies worldwide to accurately locate and map drainage features and to derive updated elevation data.

Airborne LiDAR data is collected using LiDAR laser scanners mounted on aircrafts that traverse the landscape, sending and receiving reflected light pulses. Some light pulses reflect off vegetation and some penetrate the forest canopy and reach the ground surface. The data generated from this process yields a point data cloud, which is used to create a 3D terrain and vegetation model. The data can be analysed and separated into ground and vegetation points to create highly accurate maps of the ground surface or the forest canopy (Figure 3).

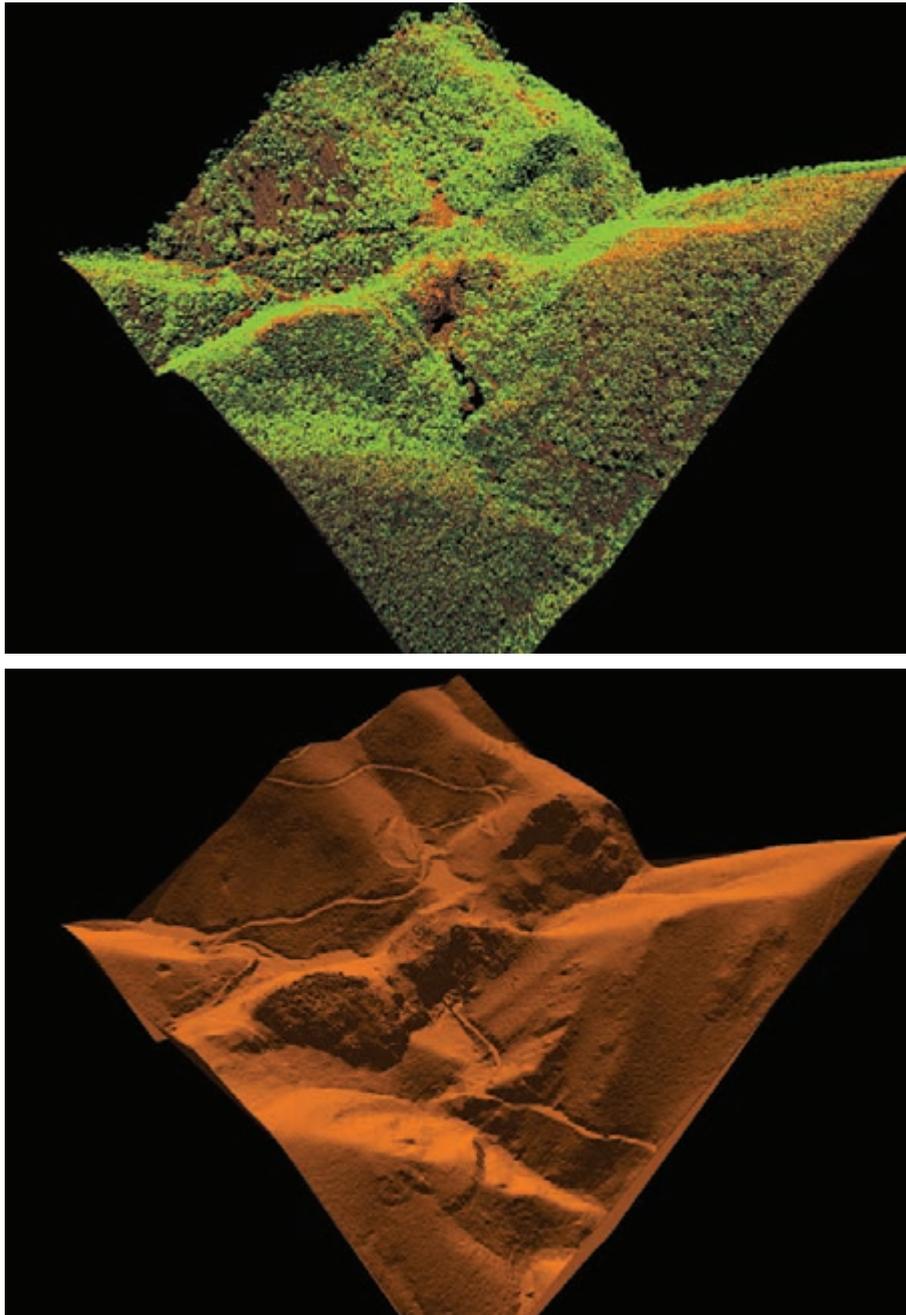


Figure 3. LiDAR vegetation points (forest canopy map) and LiDAR ground points (ground surface map) (LPI).

Proposed uses of technologies

The NSW Government proposes to use LiDAR and GeoNet technologies in implementing the new coastal IFOA. This section outlines how these technologies are proposed to be used and other issues the NSW Government is considering as part of these reforms.

Updated slope and drainage feature mapping

LiDAR data will be used to create a new Digital Elevation Model (DEM) to provide a detailed and accurate representation of continuous elevation of the ground surface.

The NSW LPI and FCNSW have been actively collecting LiDAR data across the coastal regions of NSW that is capable of generating high-resolution DEMs at vertical accuracies of +/-30cm. FCNSW has currently acquired LiDAR data for over 80% of the coastal State Forest estate.

The LiDAR DEM will be analysed to create updated slope and drainage feature maps, which will be used to locate management boundaries.

Figure 4 shows an example of a LiDAR DEM for Queens Lake State Forest covering a mix of steep and flat terrain. The image shows a highly accurate representation of the ground surface, including the location of roads and drainage lines. Drainage features have also been mapped across this surface along with the existing LPI drainage feature layer. When the drainage network is mapped with LiDAR it highlights the many omissions, errors and inconsistencies in the old mapping and the resulting difficulty in accurately and efficiently locating drainage features in the field.

GeoNet

The location of drainage lines can be modelled using using LiDAR elevation data and hydrological analysis tools. The IFOA remake has used the GeoNet automated channel extraction tool, which models stream channel location by combining elements such as catchment accumulation, catchment shape features and slope. The GeoNet tool was developed following extensive research and testing in the United States and Italy.

It is also proposed to use GeoNet to model drainage line locations. FCNSW assessment of the GeoNet-modelled stream centreline output compared to surveyed stream points indicates that 56% of all points were within 1.5m of the centreline and 85% within 2.5m of the centreline.

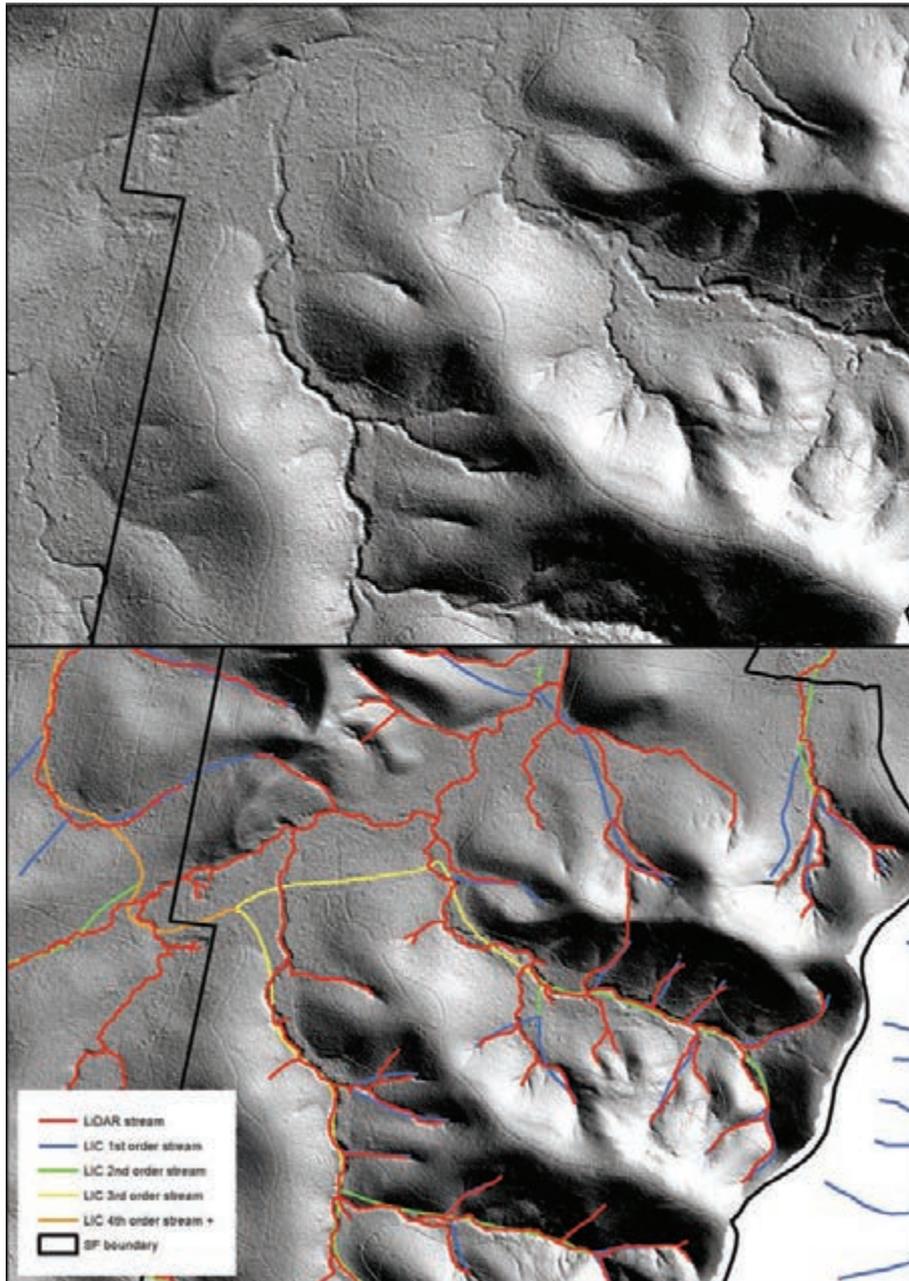


Figure 4. LiDAR ground surface map (top) and LiDAR ground surface map with LiDAR streams (GeoNet) and LIC streams overlaid (bottom) (EPA).

Inform updated drainage features and riparian habitat protections

The current IFOAs require stream orders to be determined in accordance with the methodology outlined in Schedule 1 of the TSL and Part B of Schedule 2 of the EPL. The determination of stream order methodology uses the Strahler stream order classification system, where parts of the drainage system are assigned an ‘order’ based on a hierarchy of tributaries.

As shown in Figure 5, under the Strahler stream classification system:

- a first order stream is defined as that part of the drainage system between its point of origin and the first junction with another stream.
- a second order stream commences at the junction of two first order streams
- a third order stream commences at the junction of two third order streams.

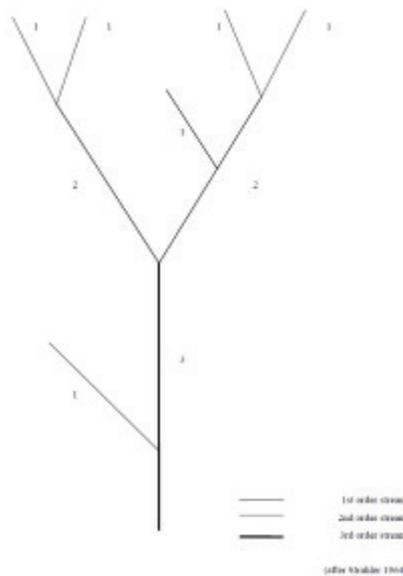


Figure 5. Schematic diagram of Strahler stream order.

The Strahler stream order classification system follows the principle that as a stream gets larger, it is given a higher classification and a larger protection buffer is applied. The protected network is intended to represent an environmentally significant corridor of high-quality habitat that allows for the refuge and movement of threatened species impacted by forestry operations.

However, this objective is not consistently achieved in IFOA regions. Some features have not been identified in the existing LIC mapping and there is inconsistency in the resulting stream-ordered drainage network where similar drainage features are assigned differing stream orders.

Use of GeoNet stream modelling will reduce the number of unmapped drainage lines. This approach will also remove the subjectivity of drainage line definition interpretation and reduce the difficulty and inherent inaccuracy of using extrapolation to determine the outer edge of protection zones on meandering drainage lines in dense forest.

It is not proposed that the current approach (Strahler) will be directly carried over to the new IFOA. Instead, it is proposed that a new classification system be adopted that aims to meet the original objective while also aiming to maintain the existing network of protected areas. The intention is that a new classification system would best match the existing protected network – i.e. it would result in no net change to protected areas or timber availability.

Options include: a system based on catchment area thresholds, such as that used by other forestry jurisdictions, including VicForests and Forestry Tasmania; or a hybrid stream order/area model that aims to carry over much of the existing network but also allows for gains in efficiency using automated processes.

Inform the assessment of stream banks

Condition 11 of Schedule 4 of the EPL, Condition 5.7(a) of the TSL and condition 7.1 (a-f) of the FL require stream-side drainage feature and riparian habitat protections to be applied either side of the stream. These protections must be measured from the top of the bank of the incised channel or, where there is no defined bank, from the edge of the channel. Where there is no incised channel, the protection zone must be measured from the centreline of the drainage feature.

The current approach requires FCNSW officers to locate the actual feature in the field to determine the start of streamside boundary protection, and extrapolate the stream location between measurement points to determine the outer edge of the protection zone. Under this approach the total protected area includes the stream-side protected area as well as the actual stream bed.

Experience implementing the IFOAs shows that the interpretation of these conditions is subjective and can make enforcement challenging.

To ensure the width of the stream bed continues to be appropriately protected under the new licences, the EPA, FCNSW and DPI will consider alternative technology options for assessing stream width.

9.2 Use of GPS for boundary identification and navigation

In the current coastal IFOAs, areas of environmental significance are protected from forestry activities through exclusion zone and buffer zone boundaries. These areas include rainforest, filter strips along drainage channels, high conservation old growth forest, wetlands and the aquatic and terrestrial habitats of threatened plants and animals.

The current IFOAs prescribe spatial layers that explicitly map the boundary of certain areas where all forestry activity is to be excluded. They also prescribe spatial layers that indicatively map features (e.g. LIC drainage features). FCNSW officers use these spatial layers to locate features in the field and to determine protected areas.

Under the current IFOAs, some of these boundaries are required to be physically marked in the field during forestry operations (e.g. rainforest, old growth, threatened species habitat), while others are not (e.g. filter strips and riparian protection areas outside of threatened fish habitat). For marked boundaries, the outer edge of lines shown on the map is considered to represent the boundary of the mapped feature when marking it in the field.

FCNSW and EPA officers currently locate mapped feature boundaries and exclusion and buffer zones in the field using hand held Global Positioning System (GPS) receivers, hip-chains and/or compasses. FCNSW officers physically mark GPS identified boundaries using paint or tape, unless the boundaries are inaccessible or are deemed to be remote from harvesting.

It currently costs FCNSW approximately \$1.5 million per year to locate and mark all boundaries in an operation, including drainage buffers, habitat features and other mapped exclusions. In some cases, this work also presents safety risks to FCNSW officers.

The NSW Government recognises that the use of accurate LiDAR stream and slope maps creates the opportunity to locate and manage these areas in the field using technologies such as Global Navigation Satellite Systems where appropriate. These technologies could generate significant cost savings and reduce the exposure of FCNSW staff to high risk environments.

It is proposed that all exclusion, protection and buffer zone boundaries contained in the new coastal IFOA be determined by either physically identifying and marking trees or features on the ground or by using appropriate technologies, such as GPS, that can accurately identify or locate the boundary or area of land in the field.

10. A new strategic environmental monitoring framework

The NSW Government recognises that the monitoring required under the current coastal IFOAs does not adequately allow for the evaluation of the effectiveness of IFOA and licence conditions in achieving their intended outcomes.

The NSW Government is committed to improving the effectiveness and efficiency of monitoring to ensure effectiveness is evaluated more strategically. This will help inform continuous improvement to ensure the environmental outcomes specified in the licence are being achieved and improved where appropriate over time.

It is proposed that the coastal IFOA includes a new strategic monitoring framework focussed on evaluating whether the IFOA licence conditions (and related protocols) are effective in achieving intended environmental standards and outcomes specified in the licence. Monitoring will also be fundamental to ensuring that adjustments are made as needed, rather than waiting until scheduled formal reviews.

The NSW Government acknowledges that continuous improvement involves a robust monitoring framework and a commitment to change when negative impacts of current practices are identified. Such an approach is fundamental to outcomes-based licensing.

Under the new coastal IFOA, continuous improvement will be facilitated by increasing the flexibility of the IFOA licence framework to respond when negative impacts are demonstrated through environmental monitoring established under the IFOA. By having built-in flexibility to develop protocols, the new IFOA framework will help facilitate continuous improvement by enabling changes to be made more efficiently. This approach aligns with the key ESFM principle of applying the best available knowledge and a continuous improvement approach.

The monitoring framework will involve assessment of a range of environmental factors such as water quality, the response of threatened species and their habitat to logging and overall forest health (such as regeneration) as indicators of how effective the IFOA licence conditions are in achieving outcomes and mitigating the environmental impacts of logging. Where possible, the monitoring framework will also align with key principles of ESFM and inform ESFM reporting.

Under the current coastal IFOAs, large amounts of data and information is recorded as part of threatened species surveys. FCNSW devotes substantial resources (approximately \$1.7 million per year) to these pre-harvest surveys. While monitoring is not their primary purpose, the large amount of data collected has proved to be of limited use for monitoring, long term management and/or the review of the IFOAs. An overall change in emphasis in licence conditions, from overly prescriptive to outcomes-based and from site-specific to landscape-based provisions, has the potential to make resources currently used for surveys available for more strategic and cost-effective data collection and monitoring.

As with all IFOA licence conditions, the EPA and DPI will regulate and assess compliance with IFOA monitoring requirements.

11. Delivering the new coastal IFOA

11.1 Implementing the new coastal IFOA

To deliver a new IFOA for coastal NSW, the NSW Government will revoke the current IFOAs and issue the new IFOA in accordance with the *Forestry Act 2012*.

The EPA and DPI will continue to regulate FCNSW forestry operations under the new IFOA.

11.2 Making information more accessible to the community

The NSW Government is committed to maintaining an accountable and transparent approach to native forestry in State forests.

The current coastal IFOAs include conditions related to the collection, storage, transfer and public availability of data and documentation. Broadly, these conditions include requirements for FCNSW to:

- collect, record and compile data e.g. harvest planning, threatened species surveys, roading plans
- produce reports including annual logging reports and EPL annual returns
- maintain registers e.g. compliance, operations and complaints
- provide notification e.g. commencement of EPL licence authority, pollution incidents
- transfer information to the regulatory agencies on a specified and regular basis or via request e.g. monthly advice or registers
- make information publically available on a specified/regular basis or via request e.g. operations register
- produce information in certain formats e.g. Excel spreadsheet for the Monthly Advice.

Under the new IFOA, FCNSW will still be required to collect, record and compile data; produce certain reports; maintain registers; provide notification; and transfer information to the regulatory agencies and the public. However, to make information more efficiently available, the NSW Government will be reviewing all of these requirements. The review will identify opportunities to align and integrate conditions to reduce duplication, streamline requirements to relevant information and improve the mechanisms for data availability/transfer.

Information about proposed changes to the way information is made available to the community will be released in Stage 3 of the IFOA remake.

11.3 Review of the new IFOA

The *Forestry Act 2012* requires any IFOA be reviewed on a five-yearly basis. The agencies are not proposing any changes to this requirement.

12. Next steps

To have your say on the issues outlined in this discussion paper, please send your feedback to the Environment Protection Authority by:

Email: ifoa.remake@epa.nsw.gov.au

Web: www.haveyoursay.nsw.gov.au

Post: Remake of the Coastal IFOAs
Environment Protection Authority
Level 12, PO Box A290
Sydney South NSW 1232

Fax: 02 9995 5922

Please provide any comments by **midnight 6 April 2014**.

All submissions will be published on the EPA's website unless you identify in your submission that you do not wish the content to be released.

The EPA, FCNSW and DPI will also conduct community information sessions to provide further information on key issues, seek feedback and help facilitate written submissions from the public.

Information on the information sessions dates and locations is available on the EPA's website at: <http://www.epa.nsw.gov.au/forestagreements/coastIFOAs.htm> . This webpage also includes additional information on the submissions process and on the key issues for the remake of the coastal IFOAs.

Following the public exhibition period, the EPA, FCNSW and DPI will review and consider written submissions prior to developing a draft new IFOA for coastal NSW.

There will be further opportunity for public comment when the draft new IFOA is placed on public exhibition during the third stage of public consultation in mid-2014.



